

NEW SPECIES OF FUNGI FROM VARIOUS LOCALITIES.

BY J. B. ELLIS AND BENJAMIN M. EVERHART.

Phyllosticta Lycopodis.

On leaves of *Lycopus Canadensis*, London, Canada, Sept., 1889. J. Dearness, 727. Spots amphigenous, thin, white, mottled with dirty gray, finally deciduous and often confluent, 1–3 mm. diam. with a definite, narrow, black border. Perithecia epiphyllous, sublenticular, black, pierced above, 80–100 μ . diam. not numerous. Sporules abundant, hyaline, elliptical, with a nucleus in each end, $2\frac{1}{2}$ –3 x $1\frac{1}{2}$ μ .

Phyllosticta Petasitidis.

On leaves of *Petasites palmata*, London, Canada, Sept., 1889. J. Dearness, 838. Spots orbicular, reddish-brown, sometimes with a whitish center, $\frac{1}{2}$ –1 cm. diam. concentrically wrinkled, margin subindefinite. Sporules oblong-elliptical, hyaline, 5–8 x $2\frac{1}{2}$ –3 μ . Possibly an imperfectly developed form of *Ascochyta microspora* Traill., but we see no septum in the sporules.

Phyllosticta minutissima.

On living leaves of *Acer glabrum*, Hot Creek Basin, Sioux Co., Nebraska, Aug., 1889. H. J. Webber, 21. Spots amphigenous irregular in outline, suborbicular, 4–9 mm. diam. reddish-brown above with a lighter colored shaded border, paler below. Perithecia hypophyllous, minute (75–85 μ .), globose, numerous, subprominent, filled with minute, subelliptical, hyaline sporules about $1\frac{1}{2}$ –2 μ . long and $\frac{1}{2}$ μ . or less broad.

Septoria Pteleæ.

On leaves of *Ptelea trifoliata*, Racine, Wis., Oct., 1890. (Davis, 9057). Spots amphigenous, scattered, small, 1–3 mm., irregular in shape, nearly black, definite but without any distinct border. Perithecia amphigenous, scattered, minute, (100–150 μ .), prominent, papillate. Sporules cylindric-verniform, nucleate, 1–3-septate, narrowed toward one end, hyaline, 35–65 x 3–3 $\frac{1}{2}$ μ .

Septoria nubilosa E. & E.

On leaves of *Helenium autumnale*, Racine, Wis., October, 1890. (Davis, 9056). Differs from *S. Helenii* E. & E. (J. M. III, 87), in the absence of any definite spots, the minute, epiphyllous, prominent

perithecia being collected in orbicular patches $\frac{1}{2}$ –1 cm. across and darker than the other parts of the leaf. Sporules 25–30 x $1\frac{1}{2}$ –2 μ ., nucleate, narrower at one end.

Phyllosticta Staphyleæ Dearness.

On living capsules of *Staphylea trifolia*, London, Canada, Aug., 1890. Dearness, No. 16. Spots at first wine color, becoming brown, mostly limited when young by a carmine-red line. *Perithecia* scattered, 90–145 μ . diam., innate, concolorous with the spot at first, at length darker and finally well marked by a ring of raised, light cuticular cells. Sporules oblong-elliptical, hyaline, becoming pale brown, 6–7 x $2\frac{3}{4}$ – $3\frac{1}{2}$ μ .

Phyllosticta Rhei.

On leaves of rhubarb (*Rheum Rhaponticum*) Newfield, N. J., Sept., 1889, and New Brunswick, N. J., Aug., 1890. (Halsted.) Spots large (1 cm. or more), reddish-brown, concentrically zoned. Sporules oblong or clavate-oblong or elliptical, 2–3 nucleate, hyaline, 7–12 x $3\frac{1}{2}$ – $4\frac{1}{2}$ μ . Some of them slightly constricted in the middle but no septum seen.

Phyllosticta Parkinsoniæ.

On living leaves of *Parkinsonia aculeata*, San Antonio, Texas, Dec., 1889–Jan., 1890. Dr. B. F. G. Egeling, No 121. Spots amphigenous, orbicular, minute (1 mm.) nearly black, with a slightly raised border, becoming reddish brown. *Perithecia* innate only slightly prominent, depressed-globose, dark, 80–100 μ . diam. Sporules elliptical or oblong-elliptical hyaline, 4–6 x 2 μ .

Phyllosticta Sophoræ.

On living leaves of *Sophora speciosa*, San Antonio, Texas, Dec., 1889. Dr. B. F. G. Egeling. Spots amphigenous, small (about 1mm), round, concave on both sides of the leaf, with a narrow raised border, nearly black, becoming reddish-brown, leaf not discolored around them. *Perithecia* innate, mostly only one on a spot partially erumpent, globose, 100–150 μ . filled with a mass of minute ($1\frac{1}{2}$ – $2\frac{1}{2}$ x $\frac{3}{4}$ μ .) sporules.

Cornularia ulmicola.

On outer dead bark of Elm, London, Canada, Dec., 1889. J. Dearness, 1248. *Perithecia* clavate-cylindrical, black, $\frac{1}{2}$ –1 mm. high and about 74 μ . thick below, enlarged above and 100 μ . thick but acute at the apex, of fibrous texture, the fibres separating above

into a dense brush-like head. Sporules enclosed in the swollen head, slender fusoid, pale yellowish, multinucleate becoming multiseptate, $70-80 \times 3 \mu$, ends attenuated and mostly curved in opposite directions, borne on filiform basidia about 35μ long. Closely allied to *C. hispidula* Ell. but differs in its smooth stem with swollen head and rather longer and narrower sporules.

Sphaeronema sphaeropsoideum.

On dead limbs of *Fraxinus*, London, Canada, Feb., 1889. J. Dearness, 1467. Perithecia scattered, conical, $\frac{1}{2}$ mm. diam., sunk in the surface of the inner bark and erumpent through the ruptured epidermis, with a subulate slender beak $\frac{1}{2}-1$ mm. long crowned with a whitish globule of ejected sporules which are oblong, hyaline, $12-20 \times 6-8 \mu$, on basidia about as long as the sporules and $2\frac{1}{2}-3 \mu$ thick. Among the basidia are numerous slender threads (sterile basidia) ? like paraphyses overtopping the sporules.

Schizothyrella Hippocastani.

On bark of dead *Aesculus Hippocastanum*, London, Canada, March, 1890. J. Dearness, 1571. Perithecia subseriately-erumpent, superficial, black, globose-tuberculiform, subconfluent or single, when perfect more or less distinctly quadrisulcate. Sporules fasciculate, $75-80 \mu$ long, separating above into cylindrical, hyaline, truncate joints $8-10 \times 1\frac{1}{2} \mu$. The lower part may be considered as a basidium and is of a brownish color.

Haplosporella seriata E. & E.

On bark of *Sambucus*, London, Canada, May, 1890. Dearness, 1661. Perithecia connate, forming a narrow oblong stroma 2 or more mm. long and 1-2 mm. wide, erumpent through the ruptured epidermis, often more or less continuously confluent in narrow strips for several cm. in length. Sporules brown, continuous, $20-25 \times 10-12 \mu$.

Vermicularia Veratrina.

On half dead leaves of *Veratrum viride*, Wilmington, Del., June, 1890. Commons, 1458. Perithecia irregularly scattered, small (75μ diam.), mostly imperfect above, clothed around the sides with black, erect bristles $70-150 \times 4-5 \mu$. Sporules fusoid-cylindrical, nucleate, slightly curved at each end, $15-22 \times 2\frac{1}{2}-3 \mu$. The leaves are soon blackened and killed.

Sphaeropsis ulmicola.

On dead elm branches, London, Canada, Apr., 1890. Dearness, 1581 (b). Perithecia scattered, minute ($\frac{1}{4}$ – $\frac{1}{2}$ mm.), white inside, covered by the epidermis which is raised into little pustules but mostly not ruptured. Sporules, yellowish-brown, elliptical or obovate, $20\text{--}30 \times 12\text{--}15 \mu$. on stout basidia rather shorter than the sporules. *S. ulmi* S. & R. has sporules $60\text{--}70 \mu$. long.

Diplodia papillosa.

On bark of dead *Cornus*, London, Canada, Feb., 1890. J. Dearness. Perithecia scattered, buried in the bark which is raised into minute papillae over them, minute ($\frac{1}{4}$ – $\frac{1}{2}$ mm.). Sporules oblong-elliptical, greenish-yellow, 1-septate and slightly constricted, $12\text{--}15 \times 6\text{--}7 \mu$. Apparently the stylosporous stage of *Didymella Corni* (Sow.), which is found with it. *D. mamillana* Fr. has larger brown spores.

Diplodia Linderae.

On dead limbs of *Lindera Benzoin*, Newfield, N. J. and London, Canada. Perithecia scattered, covered by the epidermis or partially erumpent, small, sporules oblong-elliptical, brown, 1-septate and constricted, $10\text{--}12 \times 3\text{--}4 \mu$. Possibly not distinct from *D. Harknessii*, Cke.

Diplodia Dearnessii.

On dead decorticated stem of wild currant, London, Canada, Feb., 1890. Perithecia erumpent-superficial, scattered, minute ($\frac{1}{2}$ mm.), subglobose, sporules narrow-elliptical, brown, 1-septate, $8\text{--}10 \times 3\frac{1}{2}\text{--}4 \mu$. Differs from *D. ribicola* C. & E. (Grev. V., p. 55) in its much smaller sporules. *D. ribicola* C. & E. takes precedence of *D. Ribis* Sacc. which appears to be the same.

Leptostromella elastica.

On leaves of *Ficus elastica* in a green-house at Knoxville, Tenn., Jan., 1890. Prof. F. L. Scribner. Spots large, dull white, darker around the margin with a reddish-purple border. Perithecia epiphyllous, hysteriiform, $\frac{1}{2}$ – $\frac{3}{4}$ mm. in the longer diam. opening by a longitudinal cleft along the middle. Sporules oblong, hyaline, 2–3 nucleate, $12\text{--}15 \times 4\text{--}5 \mu$., on stout, olivaceous basidia $12\text{--}15 \times 3\text{--}4 \mu$. Probably the spermogonial stage of some *Lophodermium*.

Septoria gummigena.

On the hardened gum of cherry trees, Wilmington, Del., Dec. 3, 1889. A. Commons, 1105. Perithecia gregarious, black, subovate,

soon broadly pierced above, about $\frac{1}{4}$ mm. diam. Sporules filiform, continuous, $30-40 \times 1-1\frac{1}{4} \mu$.

Septoria dolichospora.

On leaves of *Solidago latifolia*, London, Canada, Sept., 1889. Dearness, 835. Renders the leaf bullate-rugose with numerous small swellings, convex above and concave below, 1-2 mm. diam. These become white above, generally several contiguous ones becoming confluent so as to form a dirty white spot of irregular outline above and of a dark, dirty brown below, the white color spreading finally more or less and appearing also here and there below. Perithecia epiphyllous, scattered quite abundantly on the white places, $75-100 \mu$. diam. Sporules $70-110 \times 1\frac{1}{2} \mu$., continuous and not distinctly nucleate, hyaline. Differs from *S. solidaginicola*, Pk. in the bullate-rugose leaf, more abundant and larger perithecia and much longer sporules.

Septoria carnea.

On partly dead leaves of *Carex*, London, Canada, Sept., 1889. J. Dearness, 805. Perithecia hypophyllous, flesh colored, collapsed when dry, seriate between the nerves of the leaf and forming elongated patches, 1-3 cm. long and 2-4 mm. wide. Sporules fusoid, slightly curved, nucleate, acute at the apex, fasciculate, $20-30 \times 1\frac{1}{2} \mu$. hyaline.

Septoria Erechitis.

On living leaves of *Erechtites hieracifolia*, Wilmington, Del., Aug., 1890. Commons, 1536. Spots light-brown, numerous, suborbicular or elliptical, or subangular and partly limited by the veinlets. Perithecia numerous epiphyllous, small, black, erumpent, subglobose, pierced above. Sporules, $20-30 \times 1\frac{1}{2} \mu$., with several nuclei, nearly straight or rather abruptly bent near the middle.

Septoria Canadensis Ell. & Davis.

On *Solidago Canadensis*, Racine, Wis., May, 1886. Spots amphigenous, suborbicular, 2-3 mm. diam., rusty-brown becoming paler in the center and surrounded by a shaded purplish border. Perithecia minute and inconspicuous, amphigenous but mostly epiphyllous. Sporules vermiform-cylindrical, $33-45 \times 1\frac{1}{2}-2 \mu$., nucleate, becoming faintly about 3-septate. In the fresh specimens the septa do not appear, but finally a faint division of the contents of the spore may be discerned.

Septoria albicans.

On leaves of *Saxifraga Pennsylvanica*, Genoa Junction, Wis., May, 1890. Dr. J. J. Davis, 9022. Spots orbicular, chestnut-brown, subindefinite, 2-4 mm. diam. slightly depressed above and prominent below. Perithecia very minute, 40-50 μ . diam. epiphyllous, crowded in the center of the spots. Sporules filiform, 50-75 x 1½ μ ., faintly nucleate, hyaline, nearly straight, oozing out and whitening the upper surface of the spots.

S. Saxifraga Pass. agrees with this in the character of the spots but is said to have the sporules 17-30 x 3 μ .—much shorter and thicker than in the Wisconsin specimens.

Phleospora reticulata.

On *Lathyrus palustris*, London, Canada, Aug., 1890. J. Dearness, 156. Spots subquadrate, about 1 mm. diam., mostly marginal, white with a narrow black margin, numerous and confluent in one large, oblong spot 1-2 x ½ cm., the whole surrounded by a shaded dark margin. The large spot has a checkered or reticulated look on account of the narrow black lines surrounding the smaller component spots. Sporules linear, 100-160 x 3½-4 μ ., attenuated towards the ends, 3-6-septate (or more), often constricted at the septa. Perithecia very imperfectly developed, consisting merely of the more or less blackened cells of the surrounding parenchyma. The sporules are abundant and soon erumpent in short, thick, pale, flesh-colored cirrhi.

Stagonospora Petasitidis.

On living leaves of *Petasites palmata*, London, Canada, July, 1890. J. Dearness, 1767. Perithecia epiphyllous, scattered hemispherical, black, coarsely cellular, smooth, broadly perforated above, about ½ mm. diam. Sporules clavate-cylindrical, nucleate, becoming 3-4-septate, 55-70 x 5-6½ μ . hyaline.

Stagonospora Cyperi Ell. & Tracy.

On culms of *Cyperus cylindricus*, Starkville, Miss., July, 1890. Tracy, 1559. Perithecia minute, globose, crowded, forming pustuliform groups 1 mm. or more in diam. beneath the cuticle which becomes brown above them and finally splits open, exposing the tobacco-brown perithecia. Sporules fusoid, hyaline, 12-16 x 2½-3 μ ., 2-3-nucleate.

Stagonospora Trifolii.

On living leaves of *Trifolium repens*, London, Canada, Aug., 1890. Dearness, 262. On dark brown spots (becoming paler), of considerable size and more or less limited by the veinlets of the leaf. Perithecia innate, subprominent above, pale. Sporules cylindrical, 2-4-nucleate, 12-20 x 3-4 μ ., hyaline.

Coryneum Paspali.

On dead culms of *Paspalum platycaule*, St. Martinsville, La., Dec., 1859. Langlois, 2239. Acervuli scattered, erumpent, black, $\frac{1}{2}$ mm. diam. Spores oblong cylindrical, brown, 6-9-septate, 50-60 x 10-12 μ ., on short basidia.

Glæosporium Caryæ Ell. & Dearness.

On leaves of *Carya alba*, London, Canada, Sept., 1890. Dearness, 319. Spots suborbicular, reddish-brown above, darker below, 1-2 cm. in diam. or by confluence more, subindefinitely margined. Acervuli hypophyllous, numerous, small, 75-150 μ . superficial, brown. Spores allantoid, hyaline, continuous, 7-10 x $1\frac{1}{2}$ -2 μ .

Glæosporium Celtidis.

On leaves of *Celtis occidentalis*, London, Canada, Sept., 1890. J. Dearness. Spots mostly marginal, more or less continuous along the edge of the leaf, sometimes occupying and killing half the upper part of the leaf and eventually the entire leaf, the dead areas turning dirty brown and being definitely limited by a darker, narrow border, beyond which the leaf often turns yellowish. Acervuli numerous, about 200 μ . diam. Spores fusoid-oblong or ovate-oblong, continuous, 10-12 x 4-5 μ ., hyaline, mostly erumpent below in small orange-colored heaps.

Glæosporium lunatum.

On large (1-3 cm.) orbicular dead spots on living leaves of *Opuntia*, with *Sphaerella Opuntiae* E. & E., San Antonio, Texas, Jan., 1889. Dr. B. F. Egeling. Acervuli erumpent, flesh color, numerous. Spores lunate-fusoid, 12-20 x 2-3 μ ., mostly a little thicker at one end. Differs from *G. Opuntiae* E. & E. in its maculicolous growth and lunate spores.

Glæosporium saccharinum.

On leaves of *Acer saccharinum*, Racine, Wis., June, 1889. Dr. J. J. Davis, 1189. Killing the margin and upper part of the leaves which become brown and dry and are finally entirely destroyed.

Acervuli minute, abundant not readily seen. Spores oblong-fusoid, $6-7 \times 1\frac{1}{2}-3 \mu$., hyaline, continuous.

Glæosporium Canadense.

J. M. V., p. 153. Dr. Davis sends from Wisconsin a variety of this on leaves of *Quercus alba* having the spots larger (1 cm. and over), of a brighter color and sometimes confluent over a large part of the leaf. The spores are about the same as in the Canada specimens.

Glæosporium ovalisporum.

On leaves of *Prunus serotinas*, London, Canada, May, 1890. Dearness, 1714. Acervuli minute, thickly scattered over large dead areas of the leaf which becomes of an ashy-brown, erumpent on both surfaces of the leaf. Spores ovate or lemon-shaped with a slight apiculus at one end, $6-10 \times 5-7 \mu$. Affects the leaves in the same way as *G. aridum*, E. & H.

Cylindrosporium Ziziae.

On living leaves of *Zizia cordata*. Racine, Wis., June, 1890. Davis, 9016. Spots amphigenous, subangular, mostly subelongated, small, $1-1\frac{1}{2} \times 2-3$ mm., blackish, limited by the veinlets. Acervuli numerous, crowded, small, dark. Spores cylindrical-vermiform, $40-60 \times 5-6 \mu$., nucleate, becoming 3-6-septate, slightly curved, erumpent in white cirrhi more abundantly on the lower surface of the leaf.

Cylindrosporium Dearnessii.

On leaves of *Curpinus Americana*, London, Canada, June, 1890. Dearness, 1727. Spots reddish-brown, orbicular, 2-3 mm. diam., the margin a little darker. Acervuli few, crowded in the center of the spots, 100-120 μ . diam. Spores cylindrical, granular, becoming 3- or more-septate, often curved into a semicircle, $35-40 \times 2\frac{1}{2}-3 \mu$., erumpent on both sides of the leaf but especially above, forming a loose, white flocculent mass.

Cylindrosporium Cicutaë.

On living leaves of *Cicuta maculata*, London, Canada, Sept., 1889. J. Dearness, 567. Spots dirty brown, amphigenous 1-2 mm. diam. suborbicular, partly limited by the veinlets. Acervuli minute, innate, 70-80 μ , diam., scarcely visible. Conidia $20-30 \times 1\frac{1}{2} \mu$. (exceptionally 35 μ . long), nucleate, nearly straight, thicker at one end, greenish-hyaline, erumpent mostly on the upper side of the leaf in

minute, white cirrhi. This is quite distinct from *Septoria Sii*, Desm. which has distinct perithecia and longer sporules.

Cylindrosporium Ceanothi.

On leaves of *Ceanothus thyrsiflorus*, Santa Cruz Mts. near Fulton, Cala., Aug., 1888. Prof. L. M. Underwood. Amphigenous. Acervuli large, on small (1-2 mm.), blackish-brown spots which are thickly scattered over the leaves and more or less confluent, paler beneath. Spores vermiform, more or less curved, 1-3-septate, 35-45 $\times$ 4 μ ., issuing in compact flesh-colored cirrhi.

Marsonia nigricans.

On leaves of *Salix*, London, Canada, Sept., 1890. Dearness, 308. Spots amphigenous, nearly black above, becoming more or less whitish, reddish-brown below, indefinitely limited and more or less confluent or sometimes definitely limited, especially above, and margined by a narrow, yellow shaded border. Spots, when not confluent, about $\frac{1}{2}$ cm. diam. Acervuli 100-125 μ . diam., dark-colored, not numerous. Spores clavate-ovate, curved, acute below, with a single septum near the lower end, 14-16 $\times$ 6 μ ., erumpent on the lower surface of the leaf. *M. Populi* is epiphyllous and has larger spores.

Marsonia apicalis.

On living leaves of *Salix lucida*, Racine, Wis., July, 1890. Davis, 9012. Occupying the apex of the leaf which soon becomes brown, dry and dead. Acervuli, minute, numerous. Spores oblong or oblong-cylindrical, hyaline, 1-septate, 12-20 $\times$ 5-6 μ ., one end often a little narrower, erumpent mostly on the lower surface of the leaf in minute white heaps.

Ramularia Canadensis

On living leaves of *Carex conoidea*, London, Canada, Aug., 1890. Dearness, No. 22. Spots black, elliptical, 1-2 mm. long or by confluence $\frac{1}{2}$ -1 cm. becoming white in the center. Hyphae subulate, hyaline, continuous, 30-40 $\times$ 3-4 μ ., arising from the white center of the spots and bearing at their tips oblong 1-septate, nucleate, 2-3-concatenate, hyaline conidia, 15-22 $\times$ 5-6 μ .

This can hardly be referred to *Septocylindrium* on account of its well developed fertile hyphae (basidia). It bears considerable resemblance to *Septocylindrium caricinum* Sacc., but differs in its subulate basidia and broader, 1-septate conidia.

Ramularia stolonifera.

On leaves of *Cornus stolonifera*, London, Canada, Sept., 1889. J. Dearness, 707. Hypophyllous on small, pale-reddish, subindefinite spots which are rather more distinct above. Hyphae subfasciculate, hyaline, simple or sparingly branched, $20-40 \times 3-4 \mu$., continuous, obtuse and denticulate above. Conidia cylindrical, obtusely pointed, catenulate (2-3), $10-30 \times 2-3 \mu$.

R. angustissima Sacc. (on *Cornus sanguinea*) is said to have the hyphae $10-40 \times 1-1\frac{1}{2} \mu$., and conidia $10-12 \times 1-1\frac{1}{2} \mu$. Ours may be only a more robust form.

Ramularia arnicalis.

On *Arnica cordifolia*, Rimini, Montana, June, 1889. Rev. F. D. Kelsey, No. 88. Spots amphigenous, 3-4 mm. diam. suborbicular or partly limited by the veinlets, dark dirty-brown above, with a lighter, subindefinite, yellowish border, dull white below. Hyphae hypophyllous, subfasciculate, $12-20 \times 2\frac{1}{2}-3 \mu$., slightly toothed above. Conidia subcylindrical, $15-20 \times 3 \mu$., nucleate, acute at the ends and the upper end mostly slightly curved.

Ramularia repens.

On leaves of *Aralia racemosa*, London, Canada, Sept., 1889. J. Dearness, Nos. 876 and 877. Hypophyllous. Hyphae subfasciculate $12-20 \times 3 \mu$., subdenticulate above, arising from creeping, branched sterile threads. Conidia cylindrical, nucleate and granular $15-22 \times 3-4 \mu$., some of them uniseptate and constricted, subcatenulate in series of 2-3, the upper one sometimes bearing 2-3 conidia standing in a digitate manner on the apex. The fungus forms small cinereous white patches 2-4 mm. diam. either indefinitely limited or partly bounded by the veinlets.

Ramularia Dioscoreae.

On leaves of *Dioscorea villosa*, Racine, Wis., Aug., 1889. Dr. J. J. Davis, No. 189. Hypophyllous in small, whitish patches, thickly scattered over the entire surface of the leaf which is faintly mottled with yellow above. Fertile hyphae erect $25-35 \times 4 \mu$., mostly toothed above. Conidia oblong-cylindrical, obtuse, 1-septate, $15-25 \times 3\frac{1}{2}-4\frac{1}{2} \mu$. The hairs of the leaf are surrounded by the fungus which gives them a whitish incrustated appearance. This is very different from *Cercospora Dioscoreae* E. & M.

Ramularia lethalis.

On leaves of *Acer rubrum*, London, Canada, June, 1890. J. Dearness, 1730. Spots irregular, subconfluent, 3-6 mm. across, black-brown, extending over and killing the leaves. Hyphae hyphophyllous, slender, $12-15 \times 2 \mu$. Conidia elliptical to oblong, $5-12 \times 2\frac{1}{2}-3\frac{1}{2} \mu$., the longer ones 1-septate, the shorter ones continuous.

Peronospora Impatiensis.

On leaves of *Impatiens fulva*, Wilmington, Del., Apr., 1889. A. Commons, 1373. Forming small, loose tufts becoming more or less confluent, at length in an almost continuous thin white coat on the lower surface of the leaves. Conidial hyphae bare for 200-300 μ . below and 8-10 μ . thick and continuous, above this sending out about 3 alternate branches nearly at a right angle, each of these branches generally trifidly divided, each division bearing at its extremity about 3 straight spreading spicules bearing the globose 12-14 μ . or elliptical $15-17 \times 12-14 \mu$. conidia. Oospores not seen.

Titæa Clarkei.

Parasitic on *Dichuena strumosa*, on *Quercus ilicijolia*, Vineland, N. J., Apr., 1888. Miss C. H. Clarke. Forming punctiform or elongated ($\frac{1}{2}$ -1 mm.), white appressed tufts of closely aggregated, hyaline, quadrilocular conidia which are made up of two vertical cells the upper one of which is globose or slightly elliptical, 7-9 μ . diam. and the lower one subovate and smaller but bearing on each of the two opposite sides a slightly curved or nearly straight spreading arm 40-45 μ . long with two constrictions near the base where it is about 4 μ . thick, and gradually attenuated above to a slender bristle-like tip. Occasionally there are three of these arms. The conidia are borne on pedicels $15-25 \times 3 \mu$. 4-5 times constricted and arising from a cellular stratum. This appears referable to Saccardo's genus *Titæa*, from the single described species of which it differs in the constricted arms and pedicel which give it a very ornate appearance. The species is dedicated to its discoverer Miss C. H. Clarke whose name is already familiar to the students of mycology.

Rhinotrichum muricatum.

On decaying bark, Adirondack Mts., 1887. Dr. Geo. A. Rex. Appears like a thin clay-colored or grayish tomentose coating on the matrix, effused and continuous for several cm. Prostrate

hyphae brown, sparingly septate, branched, sending up an abundance of erect straight roughened branches 100–125 μ . long and 10–12 μ . thick, and mostly attenuated gradually above, bearing on all sides the subelliptical, ferruginous-brown conidia which are often a little bulging on one side and are about 7 x 3 μ . The erect fertile branches appear as if coated with coarse sand.

Zygodesmus tuberculosus.

On decaying roots in swampy woods, Newfield, N. J., Oct., 1889. Hyphae, hyaline, about 10 μ . diam. repeatedly branched above, septate, branches erect, terminal divisions obtuse, 10–12 μ . diam. with 2–4 sporophores 12–16 x 3 μ ., bearing the oblong hyaline 15–20 x 5–6 μ . conidia. The hyphae are collected in small ($\frac{1}{2}$ –1 mm.) tubercular tufts closely crowded or subconfluent forming a dull white nearly continuous stratum resembling a tubercular *Corticium*.

Zygodesmus limoniisporus.

On rotten maple, London, Canada, Oct., 1889. Dearness, 957. Forms a thin drab-yellow stratum on the wood. Hyphae coarse (6–8 μ . diam.) subhyaline septate, the extremities much branched and assurgent, forming the thick (20–25 x 10 μ .) basidia which are somewhat swollen and obtuse above with 4 stout spicules bearing the lemon-shaped, yellowish-hyaline briefly pedicellate conidia, 7–9 x 5 μ .

Coniosporium subgranulosum.

On decorticated poplar, Sand Coulee, Cascade Co., Montana, Oct., 1889. F. W. Anderson, 646. Forming small black, gregarious, pulvinate sori composed of slightly adherent subglobose, granular-roughened, brown conidia 4–5 μ . diam. Occasionally two conidia are connate so as to appear 1-septate. Approaches *Torula*.

Fusicladium Angelicæ.

On living leaves of *Angelica atropurpurea*, Racine, Wis., Sept., 1890. Davis, 9035. Hyphae hypophyllous, continous, brown, subundulate, 40–50 x 5–6 μ ., toothed above, seated on a sphaeriaeform, sclerotoid base, finally deciduous leaving the black sclerotoid base exposed and resembling the perithecia of a *Sphaerella*. Conidia terminal, clavate 1-septate, hyaline, 30–40 x 8–10 μ .

Clasterisporium dothideoides.

On dead twigs and stems of *Shepherdia argentea* and *Artemisia cana*. Valley of the Teton in Northern Montana, July, 1889. F.

W. Anderson 540 and 554. Bursting through cracks in the bark in small ($\frac{1}{2}$ mm.) compact, black tufts which bear some resemblance to an erumpent *Dothidea*. Conidia ovate-oblong or oblong-cylindrical 3-septate, yellow-brown, mostly a little curved, $25-40 \times 12-15 \mu$, rounded at the ends and borne on hyaline, simple or imperfectly branched basidia (fertile hyphae) $20-30 \times 5-7 \mu$.

Cercospora Kalmiae.

On living leaves of *Kalmia latifolia*, Newfield, N. J., Jan. 1, 1890. Spots amphigenous orbicular, dark brown, about $\frac{1}{2}$ cm. diam. or by confluence much larger, with a narrow yellowish (not raised) border, concentrically wrinkled. Tufts of hyphae epiphyllous sphaeria-form, scattered, black, consisting of a tubercular base about 100μ diam. from which arise in a dense, spreading fascicle the smoky hyaline, closely undulate, continuous or faintly septate, $70-80 \times 3\frac{1}{2}-4 \mu$ hyphae, slightly toothed above and bearing the obelavate, hyaline, faintly 3-5-septate, slightly curved conidia. This is quite different from *C. sparsa* Cke. which is hypophyllous and not on any definite spots.

Cercospora pachyspora.

On leaves of *Alisma Plantago* and *Peltandra Virginica*, Wilmington, Del., Oct., 1889. A. Commons, 1013, 1014. Spots amphigenous, large (1-2 cm.), cinereous, often elongated or marginal, limited by a narrow purplish border. Hyphae in dense tufts, nearly hyaline, continuous, undulate, entire or sparingly toothed above, $60-75 \times 4-5 \mu$, lead colored. Conidia oblong, 3-septate, $35-50 \times 8-10 \mu$, or elongated, obelavate, $5-7 \mu$, septate, $60-80 \times 8-10 \mu$. This is very distinct from *C. Alismatis* Ell. & Holw. or *C. Cullae* or *C. Nymphaeaceae* C. & E., though all these have the lead colored hyphae.

Cercospora caespitosa.

On living leaves of *Eustachys petraea* and *Chloris Swartziana*, Ocean Springs, Miss., Sept., 1889. Prof. S. M. Tracy, No. 1215. Mostly hypophyllous, forming scattered, brownish-black tufts $\frac{1}{4}-\frac{1}{2}$ mm. diam. and much resembling the minute sori of some *Puccinia*. Hyphae densely tufted, deep brown, 3-5-septate, closely undulate and geniculate above, $70-100 \times 4 \mu$. Conidia cylindrical-fusoid, slightly curved, hyaline $20-35 \times 3-3\frac{1}{2} \mu$. *C. striaeformis* Winter, to which this must be closely allied, grows in elongated tufts and has the conidia more slender.

Cercospora Davisii.

On leaves of *Melilotus alba*, Racine, Wis., July, 1889. Dr. J. J. Davis, 1089. Spots amphigenous, dark brown, suborbicular, $1\frac{1}{2}$ cm. diam., margin subindefinite. Hyphae amphigenous, cespitose, pale brown, geniculate or shouldered and crooked, more or less septate, $40\text{--}50 \times 5 \mu$. Conidia very variable, oblong-cylindrical to obclavate, $20\text{--}80 \times 4\text{--}5 \mu$, multinucleate, becoming 5-6- or more septate, hyaline. Different from *C. Meliloti* Ouds. as decided by Oudemans himself to whom we have sent specimens.

Cercospora Houstoniæ.

On the lower leaves of *Houstonia cerulea*, Wilmington, Del., April, 1890. Commons, 1371. Hyphae $20\text{--}30 \times 3\text{--}4 \mu$, continuous, brownish, scarcely toothed, subundulate, rising from a minute tubercular base and forming minute, scattered tufts on the upper surface of the leaves. Conidia subhyaline, lanceolate, $30\text{--}40 \times 3 \mu$, granular and nucleolate, becoming 1-3-septate.

Cercospora Osmorrhizæ.

On *Osmorrhiza longistylis*, Newark, Del., May, 1890. Commons, 1416. Racine, Wis. Davis 9031. Spots amphigenous, grayish-black, 2-3 mm. diam. situated on dead areas of the leaf, indefinitely limited. Hyphae loosely fasciculate, $60\text{--}70 \times 3 \mu$, sparingly septate, subolivaceous, shouldered and toothed above, few in a fascicle. Conidia slender multiseptate, hyaline, $80\text{--}120 \times 3\text{--}4 \mu$.

Cercospora Acnidæ.

On *Acnida cannabina*, Wilmington, Del., Sept., 1889. A. Commons, 1011. Spots amphigenous, suborbicular, 1-3 mm. diam. dirty white, margin dark. Hyphae amphigenous, brownish, continuous, geniculate and more or less toothed above, $35\text{--}50 \times 3\frac{1}{2}\text{--}4\frac{1}{2} \mu$. Conidia obclavate, hyaline, 3-5-septate, $60\text{--}75 \times 3\text{--}3\frac{1}{2} \mu$.

Cercospora Negundinis.

On leaves of *Negundo aceroides*, Lincoln, Nebraska, Aug., 1889. Roscoe Pound, No. 37. Spots amphigenous $\frac{1}{4}\text{--}\frac{1}{2}$ cm. diam., rusty brown, lighter in the center, subindefinite, mottled with small white spots or specks. Hyphae epiphyllous, tufted on a tubercular base, straight, continuous, nearly hyaline, obtuse and slightly toothed above, $25\text{--}30 \times 5\text{--}7 \mu$. Conidia obclavate 2-4-septate, hyaline, $90\text{--}110 \times 5\text{--}6 \mu$. Quite different (according to spec. from de Thumen) from *C. acerina* Hartig.

Cercospora Senecionis.

On leaves of *Senecio aureus*, Wilmington, Del., Aug., 1889. A Commons, No. 978. Spots amphigenous, suborbicular, 1-3 mm. diam. subconfluent, rusty brown at first and surrounded by a dark purplish discoloration, then grayish-white. Hyphae fasciculate, scattered, erect, brown, 3-4-septate, subgeniculate above, 100-150 x 4-5 μ . Conidia subcylindrical, multiseptate, hyaline, not constricted, 90-120 x 5-6 μ . This is different from *C. Jacquiniiana* Thum. of which we have specimens from Dr. Winter.

Cercospora infusans.

On fading leaves of *Rhus venenata*, Wilmington, Del., Oct., 1890. Commons, 1621. Spots at first brownish and limited by the veinlets of the leaf, becoming confluent and black, occupying and killing the affected part which becomes dead and brittle. Hyphae hypophyllous, fasciculate, erect, slightly bulbous at base and somewhat toothed above, septate, dark, 70-85 x 4 μ . Conidia clavate or oblong-clavate, tinged with olive or sooty-black but transparent, 30-60 x 4-5 μ , 3-6-septate and often constricted at the septa. Accompanied by numerous small, sterile perithecia, apparently some young *Sphaerella*.

Cercospora Comandrae Ell. & Dearness.

On leaves of *Comandra umbellata*, London, Canada, Aug., 1890. Dearness, 294. Spots small (1-2 mm.), round, reddish-brown, definite. Hyphae short, 12-20 x 3-3½ μ , simple, entire, straight, obtuse, tufted on a small tubercular base. Conidia slender, obclavate, 70-80 x 3-3½ μ , nucleate (and faintly septate)? nearly straight.

Cercospora Mikaniae.

On leaves of *Mikania scandens*, Mississippi. Tracy, 1567. Hypophyllous. Hyphae 100-120 x 4 μ , septate, brown, subequal, fasciculate, more or less bent, sparingly toothed above, tufts effused forming indefinite olive-brown patches and more or less confluent over the entire lower surface of the leaf, but not on any definite spots. Conidia oblong-clavate, 3-6-septate, olivaceous, 40-85 x 5-6 μ .

Cercospora Halstedii.

On living leaves of *Carya tomentosa*, Cold Spring, N. Y., July, 1890. Dr. B. D. Halsted. Hypophyllous. Effused, forming indeterminate, olive-black patches 2-4 mm. diam. but without any definite spots. Hyphae erect, brown, sparingly septate, 100-150 x 5-7 μ , closely undulate or crisped and torulose above. Conidia ob-

clavate, brown, $65-80 \times 5-7 \mu$, about 3-septate and sometimes constricted at the septa, the broad triseptate part occupying about one-half the length.

Cercospora Medicaginis.

On *Medicago denticulata*, College Station, Texas, May, 1890. H. S. Jennings, 146. Spots rusty-brown becoming dirty-brown, sub-orbicular and subindefinite, 3-5 mm. diam. Hyphae amphigenous but more abundant above, nearly hyaline at first, then yellow-brown, continuous geniculate above, $35-45 \times 4-5 \mu$. Conidia fusoid-cylindrical, hyaline, 3-6-septate, $40-60 \times 3 \mu$. The tufts of hyphae are effused, forming a short rusty-brown coating on the spots.

Cercospora lathyrina.

On living leaves of *Lathyrus latifolius* (cult.), Newfield, N. J., Aug. 1890. Spots rusty-brown, becoming paler in the center, sub-epiphyllous, rather indefinitely limited, 2-5 mm. diam. Hyphae epiphyllous, cespitose, brownish, crisped or narrowly undulate above, sparingly septate, $75-100 \times 4 \mu$. Conidia slender, hyaline, very faintly 1-3-septate, $80-110 \times 3 \mu$.

The leaves are irregularly blotched with dirty flesh-color below. Allied to *C. canescens* E. & M., but more slender throughout.

Cercospora pyrina.

On leaves of *Pyrus coronaria* Racine, Wis., Aug., 1890. Davis, 9033. Hypophyllous, effused, without any definite spots, at first in small, irregularly shaped patches, finally spreading more or less continuously over the entire lower surface of the leaf which then becomes more or less discolored, reddish-brown especially above. Fertile hyphae effused, short, $12-25 \times 5 \mu$, hyaline. Conidia oblong, fusoid-oblong or vermiform, hyaline, 3-6-septate, ends obtuse.

Fusicladium effusum Winter var. *Carpineum* E. & E.

On living leaves of *Carpinus Americana*, London, Canada, Oct., 1889. Dearness, 812. Differs from the typical form in its mostly epiphyllous growth, darker color and rather smaller, paler conidia.

Clasterisporium cornigerum.

On bark of dead *Carpinus*, London, Canada, May, 1890. Dearness, 1692. Sterile hyphae creeping, septate, sending up multi-septate fertile branches $70-100 \times 8-10 \mu$, enlarged above into the oblong-clavate, 5-7-septate, brown conidia $70-100 \times 12-15 \mu$. at first, rounded above, then truncate, the terminal cell germinating

laterally. *C. herculeum* Ell. in N. A. F. 542, has the spores only 3-4-septate. The Canada species forms flattened tufts 1-2 mm. diam., around which the fungus is more or less extensively effused.

Dendryphium muricatum.

On decaying wood of *Prunus Virginiana*, Sand Coulee, Montana, May, 1889. F. W. Anderson, No. 492. Effused, black. Hyphae erect, with short, alternate or subopposite branches bearing the 30-40 x 6-7 μ ., 3-5-septate muriculate-roughened conidia in series of 4-8.

Dendryphium pachysporum.

Parasitic on some light colored *Peniophora* on rotten wood, St. Martinsville, La., July, 1889. Langlois, 1810. Hyphae subfasciculate, septate below, moniliform-jointed above, with one or two short, jointed branches, both the branches and the main hyphae bearing at their extremities one large (25-40 x 15-20 μ .) subopaque 2-3-septate conidium, the septa being darker than the body of the conidia. The lower, septate base of the hyphae about 100 x 6 μ ., the upper moniliform part also of about the same length, the joints being 10-15 x 6-7 μ . olivaceous (lighter than the conidia), continuous or uniseptate.

Septonema griseo-fulvum.

On dead decorticated twigs of *Populus tremuloides*, Sand Coulee, Cascade Co., Montana, Oct., 1889. F. W. Anderson, 630. Forms a yellowish-drab-colored stratum, tolerably compact, extending for two or more cm. and more or less completely enveloping the limb. Hyphae interwoven, branched, hyaline at first, septate, finally separating at the alternate septa into yellowish-brown, 1-septate conidia 6-9 x 2½-3 μ . mostly constricted at the septum.

Sporidesmium tabacinum.

On decaying wood of *Populus tremuloides*, Sand Coulee, Montana, May, 1889. Anderson, 503. Effused, forming a pulverulent tobacco-brown stratum on the surface of the wood. Conidia globose or oblong, 25-35 μ . diam. or 25-45 x 20-30 μ . made up of globose cells about 6-7 μ . diam. Sterile hyphae inconspicuous. Conidia mostly with a short pedicel.

Macrosporium Podophylli.

On old *Aecidium Podophylli* Schw., Starkville, Miss., Apr., 1889. Prof. S. M. Tracy, 1202. Mostly hypophyllous, effused, thin, the sterile, creeping, pale brownish or subhyaline hyphae sending up

short (30–40 x 4–5 μ .), continuous or faintly septate, erect subhyaline, obtuse branches with clavate, yellow-brown, 4–5-septate, muriform, 30–50 x 10–12 μ ., conidia prolonged below into a distinct pedicel.

Helicosporium diplosporium.

On dead stems of *Smilax*, St. Martinsville, La., Jan., 1889. Langlois, No. 1700 (p. p.). Black, effused, velutinous, thin, composed of septate branching brown sterile hyphae from which arise the erect closely septate, subcylindrical, nearly opaque, 35–40 x 5–6 μ ., fertile hyphae bearing at their tips the solitary brown conidia composed of two series of parallel connate cells curved so as to form a circular disk 20–22 μ . diam., with a notch below, the apex of the double chain of cells not quite touching its base. *Helicoma velutinum* Ell. in Torr. Bull. has the hyphae about the same, but the conidia are smaller and composed of a single series of brown cells.

Fusarium volutella.

On dead twigs of *Vitis bipinnata*, St. Martinsville, La., Oct., 1888. Langlois, No. 1505. Hyphae hyaline, simple or sparingly branched, continuous or sparingly septate, 100 μ . long or over and 4–5 μ . thick, erect, forming brush-like tufts, rising through cracks in the bark from some buried *Cytispora*? The hyphae are tuberculose-spiculose above, bearing attached to these tooth-like projections, the falcate, hyaline, 50–70 x 4–5 μ ., 1-septate conidia. The habit and general appearance is that of *Volutella*.

Epidochium olivaceum.

On dead limbs of *Fraxinus*, London, Canada, June, 1890. Dearness, 1290. Sporodochia solitary or caespitose, tuberculiform, subhemispherical $\frac{1}{2}$ – $\frac{3}{4}$ mm. diam., dark olive, carnose, erumpent finally discoid or subcollapsed. Basidia simple, stout, 20–30 x 3–4 μ ., continuous, greenish-granular, becoming hyaline, subequal. Conidia subfalcate, obtuse, greenish-hyaline, granular, continuous, 25–35 x 5–7 μ .

Exosporium sociatum.

Associated with *Rhytisma acerinum* on leaves of *Acer rubrum*. Bayou Chene, La., Oct., 1888. Langlois, 1537. Sporodochia aniphigenous surrounding the stroma of the *Rhytisma* and on the side of the leaf opposite to it, erumpent, minute, finally subpulverulent from the abundant conidia which are dark-brown, oblong, 3-septate, straight or slightly curved, ends mostly subacute, 12–15 x 4–5 μ ., on sporophores of about the same length as the conidia.